Atty Dkt No. FMC 1427 PUS

S/N: 10/065,796 Reply to Office Action of January 15, 2004

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

- 1. (Currently Amended) A method for removing low molecular weight hydrocarbons from an exhaust gas of an internal combustion engine, the method comprising:
 - a) contacting the exhaust gas with a water-removing composition; and
- b) contacting the exhaust gas at a position downstream from the water-removing composition with a hydrocarbon-removing material to remove at least some of the hydrocarbons from the exhaust gas;

wherein the hydrocarbon-removing material has a sufficiently low Si to Al atom ratio that less than about 50% of the low molecular weight hydrocarbons desorb from the hydrocarbon-removing material at a temperature of about 250°C and wherein significant desorption of the low molecular weight hydrocarbons does not occur until a sufficiently high temperature is attained so that the low molecular weight hydrocarbons can be converted to innocuous species by a catalyst.

- 2. (Original) The method of claim 1 wherein the hydrocarbon-removing material has a sufficiently low Si to Al atom ratio that less than about 50% of the low molecular hydrocarbons desorb from the hydrocarbon-removing composition at a temperature of about 275°C.
- 3. (Original) The method of claim 1 wherein the hydrocarbon-removing material has a sufficiently low Si to Al atom ratio that less than about 50% of the low molecular hydrocarbons desorb from the hydrocarbon-removing composition at a temperature of about 300°C.
- 4. (Original) The method of claim 1 wherein the hydrocarbon-removing material is a zeolite.

Atty Dkt No. FMC 1427 PUS

S/N: 10/065,796 Reply to Office Action of January 15, 2004

- 5. (Original) The method of claim 1 wherein the hydrocarbon-removing material is a pentasil zeolite, a faujasite zeolite, mordenite, a beta zeolite, ferrierite, a mesopore zeolite, or mixtures thereof.
- 6. (Original) The method of claim 1 wherein the hydrocarbon-removing material is a zeolites having a Si to Al atom ratio less than about 25.
- 7. (Original) The method of claim 1 wherein the hydrocarbon-removing material is a zeolites having a Si to Al atom ratio less than about 15.
- 8. (Original) The method of claim 1 wherein the hydrocarbon-removing material is a zeolites having a Si to Al atom ratio less than about 10.
- 9. (Original) The method of claim 1 wherein the water-removing composition removes water vapor but not medium-sized hydrocarbons from the exhaust gas.
- 10. (Original) The method of claim 1 wherein the water-removing composition comprises a hydrophilic material.
- 11. (Original) The method of claim 10 wherein the hydrophilic material has a pore size of about 2 to about 5 angstroms in diameter.
- 12. (Original) The method of claim 10 wherein the hydrophilic material has a pore size of about 4 angstroms in diameter.
- 13. (Original) The method of claim 10 wherein the hydrophilic material is selected from the group consisting of molecular sieves, aluminas, silicas, zeolites, and mixtures thereof.

Atty Dkt No. FMC 1427 PUS

S/N: 10/065,796 Reply to Office Action of January 15, 2004

14. (Currently Amended) A vehicle exhaust system, comprising: a water trap; and a hydrocarbon trap comprising a hydrocarbon-removing material having a sufficiently low Si to Al atom ratio that less than about 50% of the low molecular weight hydrocarbons desorb from the hydrocarbon-removing composition at a temperature of about 250°C and wherein significant desorption of the low molecular weight hydrocarbons does not occur until a sufficiently high temperature is attained so that the low molecular weight hydrocarbons can be converted to innocuous species by a catalyst; wherein the hydrocarbon trap is located downstream of the water trap in the vehicle exhaust system.

- 15. (Original) The vehicle exhaust system of claim 14 wherein the hydrocarbon-removing material has a sufficiently low Si to Al atom ratio that less than about 50% of the low molecular hydrocarbons desorb from the hydrocarbon-removing composition at a temperature of about 275°C.
- 16. (Original) The vehicle exhaust system of claim 14 wherein the hydrocarbon-removing material has a sufficiently low Si to Al atom ratio that less than 50% of the low molecular hydrocarbons desorb from the hydrocarbon-removing composition at a temperature of 300°C.
- 17. (Original) The vehicle exhaust system of claim 14 wherein the hydrocarbon-removing material is a zeolite.
- 18. (Original) The vehicle exhaust system of claim 14 wherein the hydrocarbon-removing material is a pentasil zeolite, a faujasite zeolite, mordenite, a beta zeolite, ferriete, a mesopore zeolite, or mixtures thereof.
- 19. (Original) The vehicle exhaust system of claim 14 wherein the hydrocarbon-removing material is a zeolites having a Si to Al atom ratio less than about 25.

-4-

- 20. (Original) The vehicle exhaust system of claim 14 wherein the hydrocarbon-removing material is a zeolites having a Si to Al atom ratio less than about 15.
- 21. (Original) The vehicle exhaust system of claim 14 wherein the hydrocarbon-removing material is a zeolites having a Si to Al atom ratio less than about 10.
- 22. (Original) The vehicle exhaust system of claim 14 wherein the water trap removes water vapor but not medium-sized hydrocarbons from the exhaust gas.
- 23. (Original) The vehicle exhaust system of claim 14 wherein the water trap comprises a hydrophilic material.
- 24. (Original) The vehicle exhaust system of claim 23 wherein the hydrophilic material has a pore size of about 2 to about 5 angstroms in diameter.
- 25. (Original) The vehicle exhaust system of claim 23 wherein the hydrophilic material has a pore size of about 4 angstroms in diameter.
- 26. (New) The method of claim 1 wherein greater than 90% of the low molecular weight hydrocarbons desorb at temperature of about 400° C or greater.
- 27. (New) The method of claim 1 wherein greater than 90% of the low molecular weight hydrocarbons desorb at temperature of about 500° C or greater.
- 28.(New) The vehicle exhaust system of claim 1 wherein greater than 90% of the low molecular weight hydrocarbons desorb at temperature of about 400° C or greater.
- 29.(New) The vehicle exhaust system of claim 1 wherein greater than 90% of the low molecular weight hydrocarbons desorb at temperature of about 500° C or greater.